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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,588	03/16/2007	Gilbert Robert Bernard Germaine	TS5586US	6457

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EXAMINER	
SINGH, PREM C	
ART UNIT	PAPER NUMBER
1797	
MAIL DATE	DELIVERY MODE
05/24/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/561,588	GERMAINE ET AL.	
	Examiner	Art Unit	
	PREM C. SINGH	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 April 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *04/30/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Amendment to claim 14 is noted.

2. Objection to claim14 is withdrawn.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-5, 8, 9, 12-16, 19, 20, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dougherty et al (US Patent 6,294,077) ("Dougherty") in view of Richter et al (US Patent 6,315,891) ("Richter") and Degnan et al (US Patent 6,190,532) ("Degnan").

5. With respect to claim 1, Dougherty discloses a process to prepare a base oil comprising:

subjecting a mixture of a hydroisomerized Fischer-Tropsch (FT) wax and a petroleum derived feed to a catalytic pour point reducing treatment (See column 4, lines 65-67; column 5, lines 1-2; column 7, lines 60-67; column 8, line 1; column 9, lines 47-52; column 14, lines 33-46; column 15, lines 1-47; claim 2).

Dougherty also discloses the base oil with high content of paraffins (See column 5, lines 18-23, 38-43). Thus, it is expected that the paraffin content of the base oil in Dougherty invention should also be in a range as claimed.

Dougherty further discloses 15% aromatics content in the petroleum derived feed (See column 16, Table 6).

Dougherty does not appear to specifically disclose the percentage of petroleum derived feed in the mixture.

Richter discloses a process for the production of lubricating base oils using a mixture of Fischer-Tropsch (FT) wax and a petroleum-based waxy distillate in a hydrocracking and dewaxing process (See title; abstract; figure; column 3, line 52-column 4, line 45). Richter also discloses that FT wax and petroleum-based feed are blended in a ratio between 5:95 and 20:80 (See column 4, lines 27-31).

Richter invention is evidence that Dougherty invention should also be using FT wax and petroleum-based feed in a proper ratio, including as claimed.

Dougherty does not appear to specifically disclose the percentage of naphthenic compounds in the petroleum derived feed.

Degnan discloses a process similar to Dougherty for producing high viscosity index base stock by dewaxing a hydroisomerized petroleum derived feed (See abstract; column 4, lines 34-41). Degnan also discloses using Fischer-Tropsch (FT) wax in the process (See figure 3; Example 7; claim 12). Degnan further discloses using Minas Gas oil as feed with naphthenes content of 23% (See column 6, Table 1). Therefore, it is expected that the petroleum derived feedstock in Dougherty invention also should comprise the naphthenes in a range as claimed.

6. With respect to claim 2, Dougherty discloses that the petroleum derived feed is a hydrocracked vacuum distillate and waxes from hydrocrackates (See column 5, lines 8-14).

7. With respect to claims 3-5 and 14-16, Dougherty discloses sulfur content of the petroleum derived feed to be 24 ppm, nitrogen content less than 0.5 ppm, wax content 17% and pour point 10°F (-12°C) (See column 16, Table 6). Dougherty invention also discloses that the petroleum derived feed has a high viscosity index of at least 90 (See claim 3).

Degnan discloses sulfur content of the mixed feed to the pour point reducing treatment to be 20 ppm and nitrogen content of 7 ppm (See column 16, Table 7D). Degnan also discloses pour point of the petroleum derived feed 0°F and viscosity index of 138 (See column 16, Table 7D). It is to be noted that Degnan's silence on sulfur and nitrogen content of Fischer-Tropsch (FT) wax (See column 15, Table 7A) clearly indicates their negligible amounts in the feed. Therefore, the total sulfur and nitrogen contents of the mixed feed to the pour point reducing treatment is the same as the sulfur and nitrogen contents of the petroleum derived feed used by Dougherty and Degnan.

8. With respect to claims 8 and 19, Dougherty invention discloses that the base oil is hydrogenated after performing the pour point reducing treatment to produce a lube oil product of the desired characteristics (See column 10, lines 32-38). Since aromatics are saturated during hydrogenation (See column 5, lines 18-20, 43-46; column 10, lines 12-25), it is expected that Dougherty invention should achieve an aromatics content of the base oil in the desired range, including as claimed.

9. With respect to claims 9 and 20, Dougherty invention discloses dewaxing catalysts A, B, C, D and E (See column 13, Table 1). It is to be noted that Dougherty process integrates hydroisomerization and dewaxing and compares the performance of catalyst B with a solvent dewaxing process and a catalytic dewaxing process using a commercial lube oil dewaxing ZSM-5 catalyst (See column 15, Example 4; figure 4). Dougherty's dewaxing catalyst B comprises a Group VIII metal and an intermediate pore zeolite and a binder (See column 11, lines 44-66, column 13, Table 1).

It is also to be noted that intermediate pore zeolites, including ZSM-5, inherently have pore diameter in a range as claimed.

10. With respect to claims 12, 13, 23 and 24, Dougherty invention discloses, "Waxes produced by Fischer-Tropsch processing of synthesis gas may also be used as feed stocks" (Column 5, lines 1-2).

Richter invention discloses that the Fischer-Tropsch wax is obtained by hydrocracking a Fischer-Tropsch product, and distilling the product into one or more gas oil fractions and a higher boiling Fischer-Tropsch derived feed (See column 1, lines 15-33; column 2, lines 11-25).

This indicates that the FT wax should have been obtained in Dougherty process similar to Richter.

Richter also discloses, "……..In this manner, a mixture of hydrocarbons having different boiling ranges, is obtained. …….The Fischer-Tropsch wax typically has a composition wherein about 80% by volume thereof has a boiling point higher than

550°C.....Thus, for example, the Fischer-Tropsch wax may have an ASTM D2887 gas chromatography simulated distillation range in accordance with Table 1" (Column 1, lines 16-33). Therefore, it is expected that the Fischer-Tropsch product obtained in Richter invention should also have carbon number, ratio and the percentage in a range as claimed.

11. Claims 6, 7, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dougherty et al (US Patent 6,294,077) ("Dougherty") in view of Richter et al (US Patent 6,315,891) ("Richter") and Degnan et al (US Patent 6,190,532) ("Degnan") and further in view of Cody (US Patent 4,390,414) ("Cody").

12. With respect to claims 6 and 17 (as discussed earlier under claim 3), Degnan invention discloses sulfur content of 20 ppm and viscosity index of 138 (See Degnan, column 16, Table 7D), however, the invention does not appear to specifically disclose the saturates content of the petroleum derived feed.

Cody discloses a process of hydrodewaxing different hydrocarbon feed stocks (See abstract; column 4, lines 55-68; column 5, lines 1-14). Cody also discloses that the petroleum hydrocarbon feed stocks suitable for hydrodewaxing have saturates content of 80.5 to 100% (See column 9, Table 1). This indicates that Cody is evidence that the feedstock used in Dougherty invention should also have saturates content in a range as claimed.

13. With respect to claims 7 and 18, Dougherty invention discloses that the petroleum derived feed has been obtained in a process involving a hydrofinishing step performed at a hydrogen pressure of greater than 5,600 kPa (56 bar) (See column 5, lines 18-27).

14. Claims 10, 11, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dougherty et al (US Patent 6,294,077) ("Dougherty") in view of Richter et al (US Patent 6,315,891) ("Richter") and Degnan et al (US Patent 6,190,532) ("Degnan") and further in view of Graven et al (US Patent 4,681,674) ("Graven") and Delzer et al (US Patent 5,102,854) ("Delzer").

15. With respect to claims 10, 11, 21 and 22, Dougherty invention does not appear to specifically disclose hydrogen and hydrogen sulfide separation from dewaxed effluent, however, the invention does disclose hydrogen circulation rate to be adjusted in accordance with the aromatic content of the feed and also with the temperature used in the process (See column 10, lines 7-20). The invention also discloses that the heavy neutral hydrocrackate with sulfur content of 24 ppm was treated to produce the base stock (See column 16, Example 6). Clearly, during hydroisomerization/dewaxing, some sulfur will be converted to hydrogen sulfide.

Graven discloses a process of hydrodewaxing petroleum feed stocks using ZSM-5 zeolite similar to Dougherty (See abstract; column 1, lines 41-62). Graven also

discloses recovery of hydrogen containing gas from the dewaxing effluents for recycle (See column 3, lines 17-35).

Graven does not appear to disclose removal of hydrogen sulfide from hydrogen containing gases.

Delzer discloses a process of separating hydrogen sulfide produced by hydrodesulfurization of organic sulfur compounds by using a sorbent comprising zinc oxide (See abstract; column 2, lines 60-64).

In view of Graven and Delzer teachings, it would have been obvious to one skilled in the art at the time of invention to modify Dougherty invention and separate the hydrogen containing gases from dewaxing effluent as disclosed by Graven and separate hydrogen sulfide from hydrogen-containing gases as disclosed by Delzer, and recycle the hydrogen to the dewaxing unit to reduce the amount of fresh hydrogen and make the process more economical.

Response to Arguments

16. Applicant's arguments filed 05/04/2010 have been fully considered but they are not persuasive.

17. In the arguments, the Applicant argues that:

Dougherty does not disclose treating a mixture of a hydroisomerized Fischer-Tropsch wax and a petroleum derived feed to a catalytic pour point reducing

treatment. All of the examples in Dougherty treat petroleum derived feedstocks. Dougherty is focused on identifying an improved catalyst, not on improving the characteristics of a lube oil by the proper blending of a Fischer-Tropsch wax and a petroleum derived feed as is the present invention. There is no teaching of hydroisomerizing a Fischer-Tropsch wax prior to mixing it with a petroleum derived feed as required by claim 1 of the present application. These references simply state that the product "contains higher quantities of waxy paraffins" or "which are relatively more paraffinic." These citations do not establish that the paraffin content is within the claimed range. The Examiner also makes conclusory assumptions regarding the naphthene content on page 4 of the Office Action without specific support.

The Applicant's argument is not persuasive because Dougherty discloses use of petroleum derived feed, Fischer-Tropsch derived feed and a mixture of petroleum derived feed and Fischer-Tropsch derived feed for lube oil production (See column 4, lines 65-67; column 5, lines 1-17; also see column 17, claim 2). Dougherty also discloses hydrocracking of the feedstock before dewaxing (See column 5, lines 18-20, 27-28, 38-43) (See Applicant's claim 23). It is to be noted that Dougherty process integrates hydroisomerization and dewaxing (See column 7, lines 54-64; column 9, lines 16-20, 47-52; column 14, lines 33-46; column 15, Example 4; figure 4).

Richter discloses a similar invention of hydrotreating (including hydrocracking) a feedstock comprising a Fischer-Tropsch (FT) wax and a petroleum based waxy distillate

(See column 1, lines 10-14, column 2, lines 10-19), separating the bottoms fraction and subjecting to dewaxing (See column 2, lines 20-25, 40-43).

Dougherty is also improving the characteristics of a lube oil producing a high viscosity index and low pour point lube base oil by using petroleum based and FT based feed stocks as discussed earlier (See abstract, Column 5, lines 1-17). Although Dougherty does not specifically disclose using a mixture of petroleum and FT derived feed stocks in the experiments, however, Richter clearly discloses the volumetric proportion of FT derived feed and petroleum derived feed from 5:95 to 50:50 (See column 2, lines 11-13; claims 5, 13) and use of a mixture of the two feeds in the experiment (See Richter, column 6, Example 1).

As discussed earlier, Dougherty and Richter both inventions disclose use of mixtures of petroleum and FT derived feed stocks, with high paraffin content (See Dougherty, column 5, lines 18-23, 38-43; Richter, column 5, lines 21-34). Degnan discloses using paraffin content of a hydrotreated Minas feed of 66 wt% (See column 6, Table 2). This indicates that after blending this hydrotreated petroleum derived feed with FT wax and taking the blend to a hydrodewaxing step is expected to achieve a paraffin content of the base oil in a range as claimed. Degnan also discloses 23 wt% naphthenes content of the Minas gas oil and 20 wt% naphthenes content of hydrotreated Minas feed (See column 6, Table 1, 2).

Once the examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to the Applicant to come forward with evidence

establishing an unobvious difference between the claimed product and the prior art product. *In re Marosi, 710 F.2d 798, 802, 218 USPQ 289, 292 (Fed. Cir.1983).*

18. In conclusion, the claimed invention is *prima facie* obvious over Dougherty in view of Richter, Degnan, Cody, Graven and Delzer.

Conclusion

19. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PREM C. SINGH whose telephone number is (571)272-6381. The examiner can normally be reached on 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PS 052010

/Glenn A Caldarola/
Supervisory Patent Examiner, Art Unit 1797